HOUSING BODY OF ELECTRONIC EQUIPMENT

BACKGROUND OF THE INVENTION

The present invention relates to a housing body of electronic equipment which has a built-in printed board, and is mounted on a control panel or the like.

In electronic equipments such as a programmable controller or the like, a housing body is composed of a case which houses a printed board on which a CPU, an I/O circuit, an LED for display and the like are mounted, and a cover for closing an upper opening portion of the case. The cover is provided with a display portion for displaying an optical signal from the LED.

In the aforesaid electronic equipments, in general, the cover is fixed onto the housing body, to which a printed board is screwed, by means of a screw; for this reason, assembling is troublesome, and a number of many assembling processes has been required.

Moreover, the LED provided on the printed board must be arranged in the vicinity of the display portion located on the cover; for this reason, a design is troublesome. Taking the aforesaid problem into consideration, the LED and the display portion have been connected by means of an optical fiber. However, many optical fibers are wired in the housing body; for this reason, not only wiring of these optical fibers becomes complicated, but also the housing body itself must of large size.

The present invention has been made in order to solve the above problem. Therefore, an object of the present invention is to provide a housing body of electronic apparatus, which can be readily assembled, and can reduce a number of assembling processes, and further, can guide a light from a light source provided on a printed board to a display portion with a simple structure.

SUMMARY OF THE INVENTION

The present invention provides a housing body of electronic equipment, which comprises a square base body having a circumferential wall and a box-like case combined with the base body, and has a built-in printed board assembly including a plurality of printed boards,

the printed board assembly comprising first, second and third printed boards, and being configured in a manner that the first and second printed boards are arranged up and down, and the third printed board having engaging pawls formed at its both end portions is combined with one side of the first and second printed boards in a state of being perpendicular to these first and second printed boards,

the base body being provided with a plurality of printed board engaging members at an inner side of its circumferential wall thereof, and being provided with first support portions and struts at the vicinity of four corner portions,

each strut of one pair of struts opposed to each other being provided at its opposed face with a guide groove and a printed board engaging hole which communicates with the guide groove, each strut of the other pair of struts opposed to each other being provided with a second support portion at an upper end portion thereof,

the first printed board being placed on the first support portion so as to be engaged with the printed board engaging members, both end portions of the third printed board being interposed into the guide groove provided on the strut so that the engaging pawls of the third printed board are engaged with the printed board engaging holes, and end portions of the second printed board being placed on the second support portions.

The case is fitted into the base body so as to cover the printed board assembly, and a lower end portion of the case is provided with case engaging members, and further, the circumferential wall of the base body is provided with case engaging holes so that the case engaging members are engaged with the case engaging holes.

With the above construction, it is possible to assemble electronic equipments with a simple structure, and to greatly reduce the number of assembling processes.

Further, the present invention provides a housing body of an electronic equipment, which comprises a base body and a box-like case combined with the base body, and has a built-in printed board, including a prism which comprises a plurality of transparent photo-conductor and is attached to the case so that one end of the prism faces display portion provided on the case, and so that the other end thereof faces a light source provided on the printed board attached to the base body.

Further, in the housing body of the present invention, the prism is provided with an attachment engaging portion for attaching the prism to the case,

a side wall of the case is provided with a pair of ribs which includes a prism receiving portion for receiving the attachment engaging portion and engaging with the same, an upper plate of the case is formed with a plurality of display holes constituting the display portion between the ribs,

the prism is interposed between the ribs so that one end of the plurality of photo-conductors of the prism is fitted into each of the display holes, and the attachment engaging portion of the prism is engaged with the prism receiving portion of the rib.

Further, the housing body of the present invention includes a prism attachment plate for attaching the prism to the case,

the upper plate of the case is formed with a plurality of display holes constituting the display portion, and is provided with attachment plate engaging members having engaging pawls formed in the identical direction at both sides of the display holes,

the attachment plate is formed with engaging member receiving portions which are received the attachment plate engaging members and engaged with the same, and

the plurality of photo-conductors are arranged perpendicular to the prism attachment plate so that one end of the plurality of photo-conductors is fitted into each of the display holes and so that the engaging member receiving portions of the attachment plate are engaged with the engaging members of the attachment plate.

With the above construction, it is possible to guide a light from a light source to the display portion with a simple structure, and to attach the prism to the case with a simple structure without interfering with other parts or the like.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view showing the whole configuration of a housing body according to an embodiment of the present invention;

FIG. **2** is an exploded perspective view of a case shown in FIG. **1**;

FIG. **3** is an exploded perspective view of a portion of the housing body shown in FIG. **1**;

FIG. **4** is a perspective view showing a rear side of the case shown in FIG. **1**;

FIG. **5** is a perspective view showing a state that a front side of the case shown in FIG. **1** and a part of sides thereof are cut away;